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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,070	09/22/2006	Bahman Taheri	AMN P0005	2818
26360 7590 02/10/2009 RENNER KENNER GREIVE BOBAK TAYLOR & WEBER FIRST NATIONAL TOWER FOURTH FLOOR 106 S. MAIN STREET AKRON, OH 44308				
EXAMINER DUONG, THOI V				
ART UNIT 2871		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/554,070

**Applicant(s)**

TAHERI ET AL.

**Examiner**

THOI V. DUONG

**Art Unit**

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This office action is in response to the Amendment filed November 26, 2008.

Accordingly, claims 25 and 26 were amended, claims 1-24 were cancelled, and new claim 37 was added. Currently, claims 25-37 are pending in this application.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 25 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Ferguson (US 6,067,129).

Re claim 25, as shown in Figs. 1, 2 and 5-9, Ferguson discloses an accessory article incorporating liquid crystal materials, comprising:

a pair of opposed substrates 73 and 74, each said substrate having an electrode 71, 75, 76 disposed thereon and facing the other said substrate with a gap therebetween;

a liquid crystal material 79 disposed in said gap;

at least one formable member 20 (housing) for carrying said pair of substrates at an end thereof;

a driving circuit 14 (Fig. 9) connected to said electrodes to control the appearance of said liquid crystal material (col. 12, line 57 through col. 13, line 50);

said driving circuit 14 comprising:

a power supply 100; and

a controller (sensor 13, circuit board 101, IC 14a) connected to said power supply and said electrodes, said controller applying an electric field to said electrodes so as to alter liquid crystal material and control the appearance thereof, wherein said electrodes are patterned to generate an indicia when said electric field is applied to said electrodes and a patterned top layer 70 is provided on an outwardly facing surface of one of the substrates (col. 5, lines 1-13 and col. 10, line 52 through col. 12, line 28).

Re claim 32, said controller applies said electric field in a predetermined sequence, clear state or dark state (col. 5, lines 1-13).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson (US 6,067,129) in view of Kim et al. (Kim, US 2003/0052838 A1).

Ferguson does not disclose that said pair of opposed substrates are curved or doubly curved.

As shown in Figs. 3 and 4, Kim discloses a liquid crystal display device 50 comprising a pair of doubly curved substrates 12 (paragraph 34).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Ferguson with the teaching of Kim by employing a pair of doubly curved substrates in order to provide a display device with enhanced optical properties and to be compatible with functional fashions (see Abstract and paragraph 40).

6. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson (US 6,067,129) in view of Ishii et al. (Ishii, US 5,148,297).

Re claim 33, Ferguson does not disclose a structure of the liquid crystal cell as recited in claim 33.

As shown in Fig. 4, Ishii discloses a liquid crystal cell comprising:

a pair of outer substrates 1 la, 11 b, each said outer substrate having an outer electrode 14a, 14d disposed thereon;

at least one interposed substrate 16 having opposed surfaces, each said opposed surface having an interposed electrode 14b, 14c disposed thereon, said interposed electrodes facing either one of said outer electrodes on another of said interposed electrodes, said outer substrates and said interposed substrates forming gaps therebetween; and

a different liquid crystal material 13a, 13b received in each of said gaps (col. 2, lines 41-64).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Ferguson with the teaching of Ishii by employing the structure of the liquid crystal cell of Ishii in order to prevent aberration

of a display image of adjacent liquid crystal layers caused by a difference of a viewing angle (Abstract).

Re claim 34, Fig. 7 of Ishii shows a controller C1, C2 connected to said interposed electrodes, said controller applying an electric field to said liquid crystal material to control the appearance thereof (col. 5, lines 6-16).

Re claim 35, Ferguson discloses that said controller applies said electric fields across said gaps in a predetermined sequence, clear state or dark state (col. 5, lines 1-13).

7. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson (US 6,067,129) in view of Palffy-Muhoray et al. (Palffy- Muhoray, US 6,239,778 B1).

Ferguson does not disclose said at least one liquid crystal cell being polarizer-free as recited in claim 36.

Palffy-Muhoray discloses a liquid crystal cell being polarizer-free (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Ferguson with the teaching of Palffy- Muhoray by employing the liquid crystal cell with polarizer-free in order to obtain a device capable of continuous attenuation of light transmission without the need for polarizing the light (col. 1, lines 54-56).

8. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson (US 6,067,129) in view of Sunaga et al. (Sunaga, US 6,871,434 B2).

Ferguson does not disclose the top layer comprising cut crystal.

As shown in Figs. 4(a) and 4(b), Sunaga discloses that the character or the graphic form can be accentuated by providing the diamond-cut face or the crystal face for increasing brightness by irregularly reflecting the light to be transmitted to the back of the transmittable margin (col. 2, lines 46-54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Ferguson with the teaching of Sunaga by having the top layer comprising cut crystal in order to enhance the pattern (col. 2, lines 46-54).

However, as to the product-by-process limitation "cut crystal" of claim 37, it has been recognized that "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

9. Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934).

Re claim 25, as shown in Figs. 1 and 4-8, Arikawa discloses an accessory article incorporating liquid crystal materials, comprising:

a pair of opposed substrates 13a and 13b, each said substrate having an electrode 14 disposed thereon and facing the other said substrate with a gap therebetween;

a liquid crystal material L disposed in said gap;  
at least one formable member 1, 6, 7 for carrying said pair of substrates at an end thereof;  
a driving circuit (not shown) connected to said electrodes to control the appearance of said liquid crystal material (col. 15, lines 1-24), said driving circuit 14 comprising a power supply 9 (battery).

Although a driving circuit is not shown, it is obvious that the accessory article of Arikawa comprises a driving circuit having a controller connected to said power supply and said electrodes in order to apply a predetermined voltage (or an electric field) between those electrodes 14 to set the alignment of the liquid crystal L to one of two states ON and OFF (col. 15, lines 1-6). Accordingly, the electric field is applied to said electrodes to alter liquid crystal material and control the appearance thereof.

Arikawa also discloses that said electrodes 14 are patterned to generate an indicia when said electric field is applied to said electrodes and a patterned top layer 18a is provided on an outwardly facing surface of one of the substrates (13b) (col. 14, lines 50-67).

Re claim 32, it is also obvious that said controller applies said electric field in a predetermined sequence (ON and OFF, col. 15, lines 1-11).

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934) in view of Durst et al. (Durst, US 6,441,778 B1).

Arikawa does not disclose a clasp for connecting elongated ends of said formable members (wristband 6) wherein said clasp carries said driving circuit.

As shown in Figs. 3a-3c and 4, Durst discloses a clasp or buckle arranged for permitting the collar 45 (formable member) to be opened and closed, wherein the clasp carries an object locator 42 comprising driving circuit (col. 6, line 19 through col. 7, line 5).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Arikawa with the teaching of Durst by rearranging the driving circuit in the clasp in order to obtain a portable device of economical manufacture (see Abstract). Moreover, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70).

11. Claims 27-29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934) in view of Durst et al. (Durst, US 6,441,778 B1) as applied to claim 26 above, and further in view of Palffy-Muhoray et al. (Palffy-Muhoray, US 6,239,778 B1).

Re claim 36, Arikawa as modified in view of Durst does not disclose said at least one liquid crystal cell being polarizer-free as recited in claim 36.

Palffy-Muhoray discloses a liquid crystal cell being polarizer-free (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the article of Arikawa with the teaching of Palffy-Muhoray by employing the liquid crystal cell with polarizer-free in order to obtain a device capable of continuous attenuation of light transmission without the need for polarizing the light (col. 1, lines 54-56).

Re claim 27, the liquid crystal cell of Palffy-Muhoray further comprises an alignment layer 18a, 18b disposed on each said electrode,

wherein, re claim 28, said liquid crystal material is chiral nematic; and

wherein, re claim 29, said liquid crystal material comprises a liquid crystal host and a dye guest.

12. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934) in view of Kim et al. (Kim, US 2003/0052838 A1).

Arikawa does not disclose that said pair of opposed substrates are curved or doubly curved.

As shown in Figs. 3 and 4, Kim discloses a liquid crystal display device 50 comprising a pair of doubly curved substrates 12 (paragraph 34).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Arikawa with the teaching of Kim by employing a pair of doubly curved substrates in order to provide a display device with enhanced optical properties and to be compatible with functional fashions (see Abstract and paragraph 40).

13. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934) in view of Ishii et al. (Ishii, US 5,148,297).

Re claim 33, Arikawa does not disclose a structure of the liquid crystal cell as recited in claim 33.

As shown in Fig. 4, Ishii discloses a liquid crystal cell comprising:

a pair of outer substrates 1 la, 11 b, each said outer substrate having an outer electrode 14a, 14d disposed thereon;

at least one interposed substrate 16 having opposed surfaces, each said opposed surface having an interposed electrode 14b, 14c disposed thereon, said interposed electrodes facing either one of said outer electrodes on another of said interposed electrodes, said outer substrates and said interposed substrates forming gaps therebetween; and

a different liquid crystal material 13a, 13b received in each of said gaps (col. 2, lines 41-64).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Arikawa with the teaching of Ishii by employing the structure of the liquid crystal cell of Ishii in order to prevent aberration of a display image of adjacent liquid crystal layers caused by a difference of a viewing angle (Abstract).

Re claim 34, Fig. 7 of Ishii shows a controller C1, C2 connected to said interposed electrodes, said controller applying an electric field to said liquid crystal material to control the appearance thereof (col. 5, lines 6-16).

Re claim 35, Arikawa as modified in view of Ishii discloses that said controller applies said electric field across said gaps in a predetermined sequence ON and OFF (Arikawa, col. 15, lines 1-11).

14. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al. (Arikawa, US 6,147,934) in view of Sunaga et al. (Sunaga, US 6,871,434 B2).

Arikawa does not disclose the top layer comprising cut crystal.

As shown in Figs. 4(a) and 4(b), Sunaga discloses that the character or the graphic form can be accentuated by providing the diamond-cut face or the crystal face for increasing brightness by irregularly reflecting the light to be transmitted to the back of the transmittable margin (col. 2, lines 46-54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Arikawa with the teaching of Sunaga by having the top layer comprising cut crystal in order to enhance the pattern (col. 2, lines 46-54).

However, as to the product-by-process limitation "cut crystal" of claim 37, it has been recognized that "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

15. Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (US 5,532,705) in view of Ferguson (US 6,067,129).

Re claim 25, as shown in Figs. 1A, 2 and 5, Hama discloses an accessory article incorporating liquid crystal materials, comprising:

a liquid crystal cell 3;

at least one formable member 2a, 2b (wrist bands) for carrying the liquid crystal cell;

a driving circuit connected to said electrodes to control the appearance of said liquid crystal material;

said driving circuit comprising:

a power supply 8; and

a controller 5 connected to said power supply and said electrodes, said controller applying an electric field to said electrodes so as to alter liquid crystal material and control the appearance thereof (col. 9, line 55 through col. 10, line 19).

However, Hama does not disclose a structure of the liquid crystal cell comprising a pair of opposed substrates, each said substrate having an electrode disposed thereon and facing the other said substrate with a gap therebetween and a liquid crystal material disposed in said gap, wherein said electrodes are patterned to generate an indicia when said electric field is applied to said electrodes and a patterned top layer is provided on an outwardly facing surface of one of the substrates.

As shown in Fig. 5, Ferguson discloses the structure of the liquid crystal cell comprising a pair of opposed substrates (73, 74), each said substrate having an electrode (71, 75, 76) disposed thereon and facing the other said substrate with a gap therebetween and a liquid crystal material 79 disposed in said gap, wherein said electrodes are patterned to generate an indicia when said electric field is applied to said

electrodes and a patterned top layer 70 is provided on an outwardly facing surface of one of the substrates (col. 10, line 52 through col. 12, line 28).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the accessory article of Hama with the teaching of Ferguson by having electrodes patterned to generate an indicia when said electric field is applied to said electrodes and providing a patterned top layer on an outwardly facing surface of one of the substrates in order to display various operative characteristics (col. 1, lines 5-10).

Re claim 32, Ferguson discloses that said controller applies electric filed in a predetermined sequence, clear state or dark state (col. 5, lines 1-13).

16. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (US 5,532,705) in view of Ferguson (US 6,067,129) as applied to claims 25 and 32 above, and further in view of Durst et al. (Durst, US 6,441,778 B1).

Hama as modified in view of in view of Ferguson does not disclose that said clasp carries said driving circuit.

As shown in Figs. 3a-3c and 4, Durst discloses a clasp or buckle arranged for permitting the collar 45 (formable member) to be opened and closed, wherein the clasp carries an object locator 42 comprising driving circuit (col. 6, line 19 through col. 7, line 5).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the article of Hama with the teaching of Durst by rearranging the driving circuit in the clasp in order to obtain a portable device

of economical manufacture (see Abstract). Moreover, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70).

17. Claims 27-29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (US 5,532,705) in view of Ferguson (US 6,067,129) and Durst et al. (Durst, US 6,441,778 B1) as applied to claim 26 above, and further in view of Palffy-Muhoray et al. (Palffy- Muhoray, US 6,239,778 B1).

Hama as modified in view of Ferguson and Durst does not disclose said at least one liquid crystal cell being polarizer-free as recited in claim 36.

Palffy-Muhoray discloses a liquid crystal cell being polarizer-free (see Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the article of Hama with the teaching of Palffy- Muhoray by employing the liquid crystal cell with polarizer-free in order to obtain a device capable of continuous attenuation of light transmission without the need for polarizing the light (col. 1, lines 54-56).

Re claim 27, the liquid crystal cell of Palffy-Muhoray further comprises an alignment layer 18a, 18b disposed on each said electrode,

wherein, re claim 28, said liquid crystal material is chiral nematic; and

wherein, re claim 29, said liquid crystal material comprises a liquid crystal host and a dye guest.

18. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (US 5,532,705) in view of Ferguson (US 6,067,129) as applied to claims 25 and 32 above, and further in view of Sunaga et al. (Sunaga, US 6,871,434 B2).

Hama as modified in view of Ferguson does not disclose the top layer comprising cut crystal.

As shown in Figs. 4(a) and 4(b), Sunaga discloses that the character or the graphic form can be accented by providing the diamond-cut face or the crystal face for increasing brightness by irregularly reflecting the light to be transmitted to the back of the transmittable margin (col. 2, lines 46-54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the article of Hama with the teaching of Ishii by having the top layer comprising cut crystal in order to enhance the pattern (col. 2, lines 46-54).

However, as to the product-by-process limitation "cut crystal" of claim 37, it has been recognized that "Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

### ***Conclusion***

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

/Thoi V. Duong/ - Primary Examiner

February 6, 2009